

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMSF-078094
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name N/A
2. Name of Operator MARKWEST RESOURCES, INC.		7. If Unit or CA Agreement, Name and No. N/A 27395
3a. Address 155 INVERNESS DR., SUITE 200 ENGLEWOOD, CO. 80112		8. Lease Name and Well No. FULLERTON FED. #241
3b. Phone No. (include area code) (303) 290-8700		9. API Well No. 30-045- 31142
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 1040' FSL & 670' FEL At proposed prod. zone SAME		10. Field and Pool, or Exploratory BASIN FRUITLAND COAL
14. Distance in miles and direction from nearest town or post office* 12 AIR MILES SSE OF BLOOMFIELD		11. Sec., T., R., M., or Blk. and Survey or Area P 24-27n-11w NMPM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 670'	16. No. of Acres in lease 2,560	17. Spacing Unit dedicated to this well 320 ACRES (E2)
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 740'	19. Proposed Depth 1,700'	20. BLM/BIA Bond No. on file KA6084 (BLM - NATIONWIDE)
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 5,980' GL	22. Approximate date work will start* DECEMBER 12, 2002	23. Estimated duration 2 WEEKS

24. Attachments

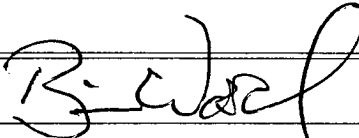
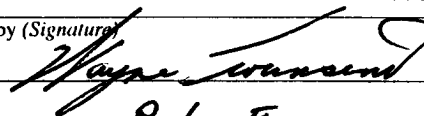
The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form:

- | | |
|---|--|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

Comments

**On site inspection with Roger Herrera.
Archaeology report CASA 02-32 filed 3-23-02.****Infill to FF24#32**DRILLING OPERATIONS AUTHORIZED ARE
SUBJECT TO COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS".This action is subject to technical and
procedural review pursuant to 43 CFR 3165.3
and appeal pursuant to 43 CFR 3165.4RECEIVED
2002 JUL 10 PM 3:22
070 PATTINSON, NM

cc:BLM (&OCD), Pippin, Stowe

25. Signature 	Name (Printed/Typed) BRIAN WOOD	Date 7-7-02
Title CONSULTANT	PHONE: 505 466-8120 FAX: 505 466-9682	
Approved by (Signature) 	Name (Printed/Typed) WAYNE TOWNSEND	Date 11/18/02
Title Pet. Eng.	Office FFO	

Application approval does not warrant or certify the the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

NMOCD

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240

DISTRICT II
611 South First, Artesia, N.M. 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 15, 2000

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-31142	² Pool Code 71629	³ Pool Name BASIN FRUITLAND COAL
⁴ Property Code 27395	⁵ Property Name FULLERTON FEDERAL	⁶ Well Number 241
⁷ GRID No. 193195	⁸ Operator Name MARKWEST RESOURCES, INC.	⁹ Elevation 5980'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	24	27-N	11-W		1040'	SOUTH	670'	EAST	SAN JUAN

¹¹ Bottom Hole Location If Different From Surface

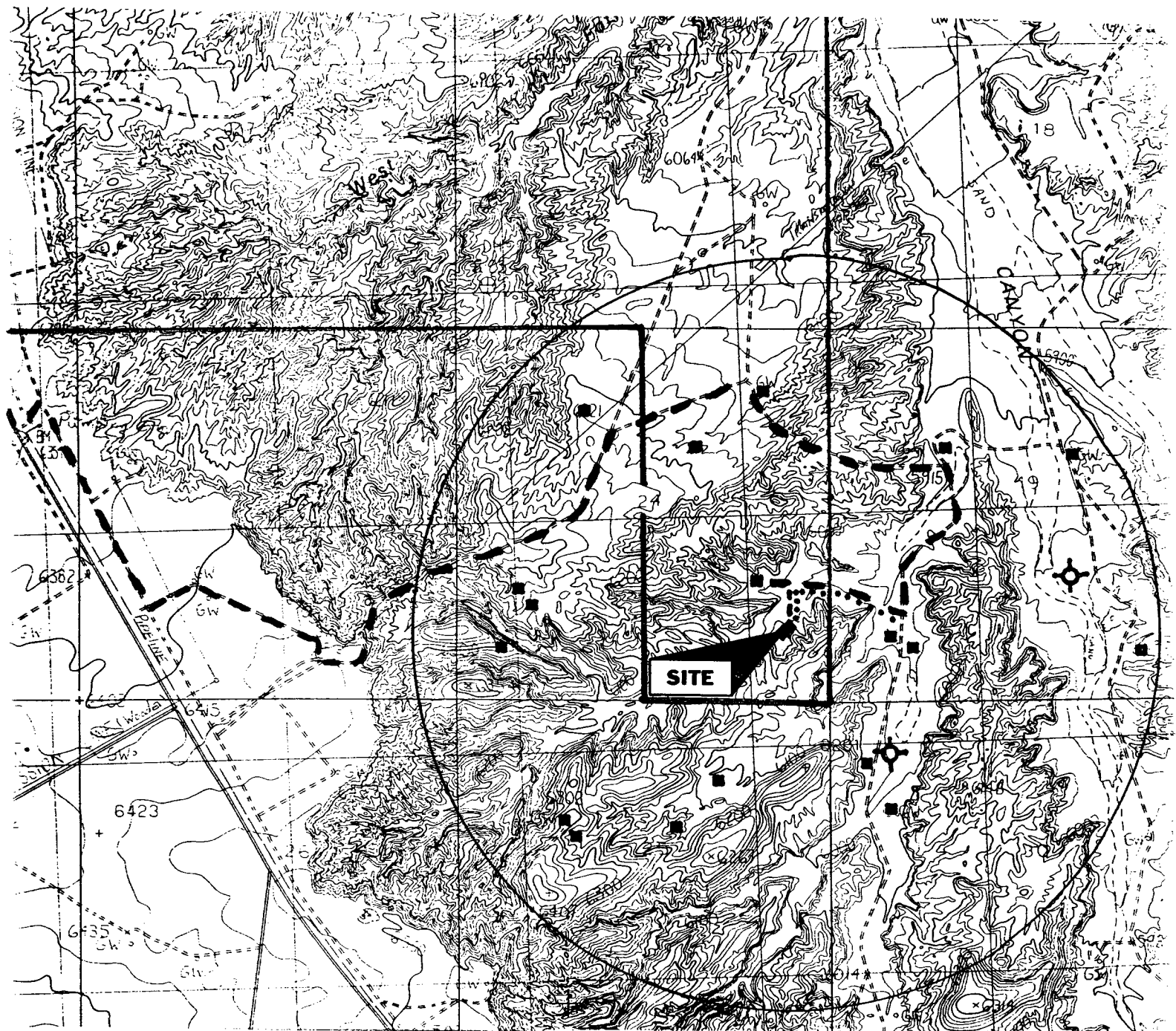
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
¹² Dedicated Acres 320			¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.		

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

<div>16</div> <div></div>	<div>17 OPERATOR CERTIFICATION</div> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.</p> <p><i>Brian Wood</i></p> <p>Signature</p> <p>Printed Name BRIAN WOOD</p> <p>Title CONSULTANT</p> <p>Date JULY 7, 2002</p>
	<div>18 SURVEYOR CERTIFICATION</div> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p><i>[Signature]</i></p> <p>Date of Survey 8/8/02</p> <p>Signature of Professional Surveyor [Signature]</p> <p>Certificate Number 8894</p>

MarkWest Resources, Inc.
 Fullerton Federal 241
 1040' FSL & 670' FEL
 Sec. 24, T. 27 N., R. 11 W.
 San Juan County, New Mexico

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- | | |
|------------------|----------------------------|
| PROPOSED WELL: ◆ | PROPOSED ROAD: - - - |
| EXISTING WELL: ■ | EXISTING ROAD: - - - |
| P & A WELL: ⊕ | PROPOSED GAS LINE: |
| LEASE: └─┘ | |

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Drilling Program

1. ESTIMATED FORMATION TOPS

<u>Formation Name</u>	<u>GL Depth</u>	<u>KB Depth</u>	<u>Elevation</u>
Nacimiento Fm	000'	5'	+5,980'
Ojo Alamo Ss	518'	523'	+5,462'
Kirtland Sh	668'	873'	+5,312'
Fruitland Coal	1,292'	1,297'	+4,688'
Pictured Cliffs Ss	1,574'	1,579'	+4,406'
Total Depth (TD)*	1,700'	1,705'	+4,280'

* all elevations reflect the ungraded ground level of 5,980'

2. NOTABLE ZONES

Gas or Oil Zones

Fruitland
Pictured Cliffs

Water Zones

Nacimiento
Ojo Alamo
Kirtland
Fruitland

Coal Zone

Fruitland

Water zones will be protected with casing, cement, and weighted mud. Fresh water found while drilling will be recorded. Oil or gas shows will be tested for commercial potential based on the geologist's recommendations.

3. PRESSURE CONTROL

Maximum expected pressure is ≈ 200 psi. The drilling contract has not yet been awarded, thus the exact BOP model to be used is not yet known. A typical 8" double ram 2,000 psi model is on PAGE 3.

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BOP equipment and all accessories will meet or exceed BLM requirements in 43 CFR Part 3160 for a 2000 psi system. A 2000 psi double ram hydraulic BOP will be used. Accumulator system capacity will be sufficient to close all BOPE with a 50% safety factor. Fill, kill, and choke manifold lines will be 2" screw connections. Accessories will include upper and lower Kelly cocks with handles, stabbing valve to fit drill pipe on floor at all times, string float at bit, 2000 psi choke manifold with 2" adjustable choke with screw connections, and pressure gauge. BOPs will be tested every 24 hours. Tests will be recorded on I. A. D. C. log.

4. CASING & CEMENT

<u>Hole Size</u>	<u>O. D.</u>	<u>Weight (lb/ft)</u>	<u>Grade</u>	<u>Age</u>	<u>Connection</u>	<u>GL Setting Depth</u>
11"	8-5/8"	24	K-55	New	ST & C	160'
6-1/4"	4-1/2"	10.5	K-55	New	ST & C	1,700'

Surface casing will be cemented to the surface with ≈118 cubic feet (≈100 sacks) Class B + 1/4 lb/sack cello-flake + 2% CaCl₂. Yield = 1.18 cubic feet per sack. Weight = 15.6 pounds per gallon. Volume = 100% excess. A guide shoe and insert float will be used with 3 centralizers. W. O. C. = 12 hours. Surface casing will be tested to 500 psi for 30 minutes.

Production casing will be cemented to the surface. Total cement = 312 cubic feet. Volumes are calculated at 80% excess. If cement does not circulate to surface, then a temperature survey will be run to determine the actual cement top as needed. W. O. C. = 12 hours. Test to 3,800 psi.

Lead cement = 235 cubic feet (≈114 sacks) Class B cement with 2% SM, 3 pounds per sack gilsonite + 1/4 pound per sack cello-flake. Yield = 2.06 cubic feet per sack. Weight = 12.5 pounds per gallon.

Tail cement = 77 cubic feet (≈50 sacks) Class B + 4% gel + 1/4#/sack cello-flake + 2% CaCl₂. Yield = 1.55 cubic feet per sack. Weight = 14.5 #/gallon.